

Fed oversight

VE No. 5

VALUE ENGINEERING CHANGE PROPOSAL
MISSOURI DEPARTMENT OF TRANSPORTATION

☒ Conceptual Proposal ☐ Final Proposal Date 08/14/09

Contract ID 090626-601 Job No. J6I1830B

County St. Louis Original Bid Cost \$34,815,241.53

Contractor Fred Weber, Inc. By Brian J. Carlson

Designed By Fred Weber, Inc. Phone (314) 792-6784

VECP# 09-69 (to be completed by C.O.) VECP ☒ or PDVECP ☐

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages
Existing: The original plans allow for 14" and 12.5" thick Super Pave asphalt or 9" and 8.5" thick concrete pavement options. FWI selected the concrete alternate B pavement option which consists of 9" PCCP on Dorsett Road and 8-1/2" PCCP for the ramps with a 3/4" ultrathin bonded wearing surface (UBWS) over the entire concrete surface. The full-depth Super Pave option, even though the life cycle cost "add" was eliminated by MoDOT, is still considerably more expensive than the concrete alternate due to the additional thickness requirements and material cost. This is evident from the bid tabulations between Alt. A and Alt. B bidders. (Continued on attached page)

2. Estimate of reduction in construction costs. \$66,720.73

3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.
Acceptance of this change will actually make this pavement easier to maintain by milling/filling of the riding surface as needed throughout its lifetime without compromising overhead clearances. The concrete option on the otherhand with a 3/4" UBWS wearing surface will be difficult to maintain and may not last as long since it is so thin. Besides, UBWS is a specialty mix that cannot be placed by any contractor or maintenance dept. If overlaid later on, overhead clearance will soon become an issue without completely tearing out the existing concrete pavement from the Alt. B option.

4. Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.

08/14/09
(date)

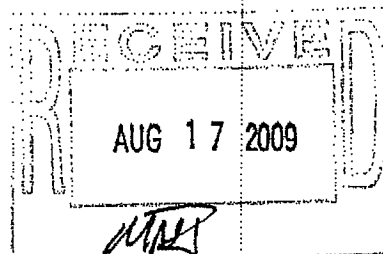
5. Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.

08/31/09
(date)

Need to know in order to avoid material price increases.
(effect)

6. Dates of any previous or concurrent submission of the same proposal.

N/A
(date and/or dates)



Additional Comments:

Core samples were taken of the existing pavement on the Ramps as well as Dorsett Road. The attached sketch indicates the location and thickness of the cores which were extracted on 08/07/09. The underlying concrete is in sound condition and should provide a good base for the overlay sections that are being proposed. The existing asphalt will be milled down to concrete or to a depth that allows for 3-3/4" of asphalt cover. Subgrade elevations of the adjacent full-depth pavement will likely have to be adjusted to match.

**** Portion Below This Line To Be Filled Out by MoDOT ****

Comments:

Submitted By Resident Engineer

Date

Comments:

☐ Approval
Recommended

☐ Rejection
Recommended

District Engineer

Date

Comments:

☐ Approval
Recommended

☐ Rejection
Recommended

Federal Highway Administration
Required for FHWA Full Oversight Projects

Date

Comments:

☐ Approval

☐ Rejection

State Construction and Materials Engineer

Date

Distribution: Resident Engineer, Project Manager, District Construction & Materials Engineer, State Construction & Materials Engineer, FHWA
Value Engineering Administrator - MoDOT, P. O. Box 270, Jefferson City, MO 65102

Additional Comments:

**** Portion Below This Line To Be Filled Out by MoDOT ****

Comments:

REJECTION RECOMMENDED: Due to traffic volumes, stops and starts, and after consulting with the Pavement Engineer, we do not feel substituting 3" BP-1 (64-22) for 3" SP250 (70-22) nor 9" Bit Base (64-22) for 9" SP250 (64-22) is acceptable. Not only is it not equal or better, it is not practical design. It is illadvised. The proposal claims this to have bee done on I-64 but the proposal does not accurately reflect the I-64 design. We are open to consideration of using existing pavement but not mix substitution.

Matthew N. Jansson
Submitted By Resident Engineer

8-18-09

Date

JANSSON

Comments:

- ☐ Approval
Recommended
- ☒ Rejection
Recommended

Ed Chung

District Engineer

8-19-09

Date

Comments:

- ☐ Approval
Recommended
- ☐ Rejection
Recommended

Federal Highway Administration
Required for FHWA Full Oversight Projects

Date

Comments:

Based on the comments above and other information related to this VE, it is rejected. Denis Glascock.
8/20/2009

David D. Glascock

State Construction and Materials Engineer

8-20-09

Date

Distribution: Resident Engineer, Project Manager, District Construction & Materials Engineer, State Construction & Materials Engineer, FHWA
Value Engineering Administrator - MoDOT, P. O. Box 270, Jefferson City, MO 65102

Missouri
Department
of Transportation



I-270, Dorsett-Page Team
2620 Adie Road
Maryland Heights, MO
63043
(314) 877-2770
Fax (314) 877-2772
Toll free 1-888 ASK MoDOT

Lee Hillner, P.E., Project Director
Niall Jansson, P.E., Deputy Director

To: Matt Budd-cm6

CC: Travis Koestner-cm
Jim Smith-de
Denis Glascock-cm

From: Niall Jansson *NJ*
Deputy Director / RE – Dorsett/Page

Date: August 18, 2009

Subject: Rejection Recommendation – VE No. 5 (Dorsett)
Job No.: J6I1830B
Route I-270 – St. Louis County
Contract ID: 090626-601

Attached please find a copy of Form C-104, submitted by Fred Weber Inc., on the above noted project. The proposal, henceforth known as Value Engineering Proposal No. 5, was to utilize some of the existing concrete pavement on the project and change the concrete option they bid to the full depth asphalt option. However, the proposal contained changing the SP250 base course to Bituminous Base. It also included changing the 3-inch SP250 (PG70-22) to BP-1 (PG64-22). The surface would have remained SP125LP (PG70-22). The proposal indicated that this was utilized on The New I-64 Project. After consulting with the I-64 team, we found this to be not quite correct. John Donahue of the Central Office Pavement Team was also consulted and he had strong opposition to the proposal.

Fred Weber has been notified that they may still pursue using some of the existing pavement, however, the proposed asphalt typical section is not acceptable.

It is still possible that we may have to allow the contractor to adopt the full depth asphalt option, as indicated in the plans, in lieu of the concrete alternate they bid since the LCCA Factor for Dorsett was set at \$0.00 for Dorsett.

We strongly recommend that Value Engineering Concept No. 5 be rejected. If you have any questions, please call me at (314) 877-2770.

"Our mission is to provide a world-class transportation experience that delights our customers and promotes a prosperous Missouri."

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages

Continued.....

Proposed: Fred Weber, Inc. proposes to keep approximately 25% of existing pavement in place for the total proposed pavement area by milling and overlaying with 1-3/4" SP125 and 2" BP-1 asphalt mixture to the final profile. The remaining 75% of pavement area will be completed as full-depth asphalt mixtures consisting of 1-3/4" SP125, 3" BP-1 & 9-1/4" bituminous base for the 14 inch Dorsett Road pavement and 1-3/4" SP125, 3" BP-1 & 7-3/4" bituminous base for 12.5 inch ramp pavement.
(See attached "Revised" typical sections)

FWI also proposes to leave the existing full-depth concrete shoulder and curb in place along Ramp 1 (Sta. 2+00 to 4+00) and the curb and drainage on Ramp 3 (Sta. 7+00 to 9+00).

These proposed changes allow FWI more opportunity for using "green" construction practices from the originally bid concrete alternate and provides additional savings to MoDOT. The asphalt that is milled can be used for rock base and/or recycled for the new asphalt pavement. This would reduce the amount of liquid AC needed compared to virgin mixes, lower emissions & fuel needed to crush "new" aggregate or produce additional mix as with the full-depth pavement option. Under these conditions, FWI can provide new pavement for this project at no additional cost from the concrete alternate to MoDOT all while maximizing "green" construction practices for a much more "Earth Friendly" project.



"Carlson, Brian J."
<bjcarlson@fredweberinc.co
m>

08/17/2009 08:17 AM

To <Matthew.Jansson@modot.mo.gov>

cc <Lee.Hillner@modot.mo.gov>

bcc

Subject FW: VE #005 - Dorsett Pavement

8-17-09

ADDED BY NIALL
TO PROVIDE
CLARIFICATION
ON PROPOSAL

MTJ

Dorsett Road:

1-3/4" SP125CLP (70-22)

3" BP-1 (64-22)

9-1/4" Bit-Base

OR

1-3/4" SP125CLP (70-22)

2" BP-1 (64-22)

Ramp Pavement:

1-3/4" SP125CLP (70-22)

3" BP-1 (64-22)

7-3/4" Bit-Base

OR

1-3/4" SP125CLP (70-22)

2" BP-1 (64-22)

-----Original Message-----

From: Matthew.Jansson@modot.mo.gov [mailto:Matthew.Jansson@modot.mo.gov]

Sent: Monday, August 17, 2009 8:03 AM

To: Carlson, Brian J.

Cc: Lee.Hillner@modot.mo.gov

Subject: Re: VE #005 - Dorsett Pavement

One more thing. In the text you reference 9"Bit Base, 3"BP-1 and 1.75"SP125. However, the typical you modified shows 0" Bit Base, 3"SP190 and 1.75SP125LP

Are you proposing the 3" layer be 1) BP-1 with PG70-22 2)BP-1 with PG64-22 or 3)SP190 with PG70-22

Are you proposing to change the surface from an LP mix to a straight SP125?

I need to be sure what you are proposing before consulyting with our pavement experts.

Thanks Niall

Items to be Reduced

Line Item	Description	Units	Plan Quantity	Unit Price	Proposed Quantity	Difference	Unit Price	Total
0010	REMOVAL OF IMPROVEMENTS (ASPHALT PAVT.)	SQYD	5,520.90	\$2.50	0.00	-5,520.90	\$2.50	(\$13,802.25)
0050	CLASS 3 EXCAVATION	CUYD	341.00	\$10.00	305.00	-36.00	\$10.00	(\$360.00)
0080	TYPE 5 AGGREGATE FOR BASE (4 IN. THICK)	SQYD	23,724.00	\$5.80	18,203.10	-5,520.90	\$5.80	(\$32,021.22)
0250	INTEGRAL CURB (6 IN. HEIGHT AND UNDER) TYPE B	LF	3,896.00	\$10.35	3,496.00	-400.00	\$10.35	(\$4,140.00)
0730	18 IN. CLASS III REINFORCED CONCRETE PIPE CULVERT	LF	1,111.00	\$42.00	919.00	-192.00	\$42.00	(\$8,064.00)
0780	PRECAST CONCRETE DROP INLET 4 FT. X 2 FT.	FT	87.00	\$555.00	77.00	-10.00	\$555.00	(\$5,550.00)
0980	TYPE A2 SHOULDER	SQYD	1,804.70	\$49.00	1,198.50	-406.20	\$49.00	(\$19,903.80)
Subtotal								(\$83,841.27)

0925	ULTRATHIN BONDED WEARING SURFACE, TYPE C	SQYD	21,282.00	\$2.85	0.00	-21,282.00	\$2.85	(\$60,596.70)
0930	CONCRETE PAVEMENT (8 IN. NON-REINFORCED)	FT	12,240.30	\$45.00	0.00	-12,240.30	\$45.00	(\$550,813.50)
0940	CONCRETE PAVEMENT (8 1/2 IN. NON-REINFORCED)	FT	4,629.90	\$51.00	0.00	-4,629.90	\$51.00	(\$236,124.90)
Subtotal								(\$847,535.10)

Items to be Added

Line Item	Description	Units	Plan Quantity	Unit Price	Proposed Quantity	Difference	Unit Price	Total
ADD	TYPE A2 SHOULDER (MODIFIED)	SQYD	0.00	\$30.00	408.20	408.20	\$30.00	\$12,186.00
ADD	ADDITIONAL SURVEYING	LS	0.00	\$5,000.00	1.00	1.00	\$5,000.00	\$5,000.00
Subtotal								\$17,186.00

0895	ASPHALTIC CONCRETE MIXTURE PG 70-22 (SP125C MIX)	TONS	0.00	\$125.00	61.00	61.00	\$125.00	\$7,625.00
ADD	14 IN., ASPH. CONC. PAVT. (SP125/BP-1 ON BIT-BASE)	SQYD	0.00	\$58.39	8,409.40	8,409.40	\$58.39	\$491,024.87
ADD	12.5 IN., ASPH. CONC. PAVT. (SP125/BP-1 ON BIT-BASE)	SQYD	0.00	\$58.39	3,346.10	3,346.10	\$58.39	\$195,378.78
ADD	3.75 IN., ASPH. CONC. PAVT. (SP125/BP-1 ON EXIST.)	SQYD	0.00	\$27.00	5,114.70	5,114.70	\$27.00	\$138,096.90
ADD	GOLDMILLING BITUMINOUS PVMT. (UP TO 3.75 IN. THICK)	SQYD	0.00	\$3.00	5,114.70	5,114.70	\$3.00	\$15,344.10
Subtotal								\$647,469.65

Total Savings

								(\$66,720.73)
MoDOT Portion - 75%								(\$50,040.54)
Fred Weber, Inc. Portion - 25%								(\$16,680.18)

Existing Ramp Pavement to be Milled

Description	Units	From	To	Length (ft.)	Width (ft.)	Area (SY)
Ramp 1 - A2 Shoulder	SQYD	200.00	400.00	200.00	6.00	133.3
Ramp 2 - A2 Shoulder	SQYD	918.00	975.00	57.00	8.00	50.7
Ramp 2 - A2 Shoulder	SQYD	1,050.00	1,100.00	50.00	8.00	44.4
Ramp 4 - A2 Shoulder	SQYD	225.00	425.00	200.00	8.00	177.8
Subtotal (A2 Shoulder)						406.2

A

Ramp 1 - Pavement	SQYD	300.00	400.00	100.00	15.00	166.7
Ramp 2 - Pavement	SQYD	918.00	1,144.00	226.00	12.00	301.3
Ramp 3 - Pavement	SQYD	700.00	875.00	175.00	19.00	369.4
Ramp 4 - Pavement	SQYD	196.00	225.00	29.00	12.00	38.7
Ramp 4 - Pavement	SQYD	225.00	400.00	175.00	15.00	291.7
Ramp 4 - Pavement	SQYD	700.00	787.00	87.00	12.00	116.0
Subtotal (Pavement)						1,283.8

B

Existing Dorsett Pavement to be Milled

Description	Units	Length (ft.)	Width (ft.)	Area (SY)
Dorsett Road - Pavement	SQYD	64.00	62.00	440.9
Dorsett Road - Pavement	SQYD	140.00	42.00	653.3
Dorsett Road - Pavement	SQYD	140.00	23.00	357.8
Dorsett Road - Pavement	SQYD	70.00	67.00	521.1
Dorsett Road - Pavement	SQYD	120.00	18.00	240.0
Dorsett Road - Pavement	SQYD	120.00	20.00	266.7
Dorsett Road - Pavement	SQYD	190.00	28.00	591.1
Dorsett Road - Pavement	SQYD	190.00	36.00	760.0
Subtotal (Pavement)				3,830.9

C

Total (A2 Shoulder) - A	406.2	SQYD
Total (Pavement) - B + C	5,114.7	SQYD

STATE OF MISSOURI
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ST. LOUIS
J611850B


CONTRACT NO.
1-210

SECTION NO.
6

DATE
8/4/2009

BY
1-210

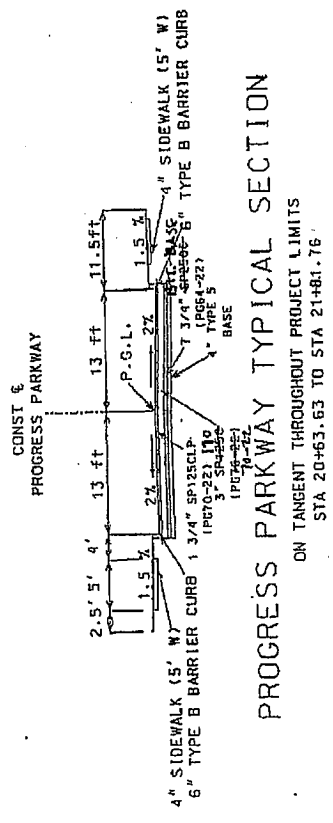
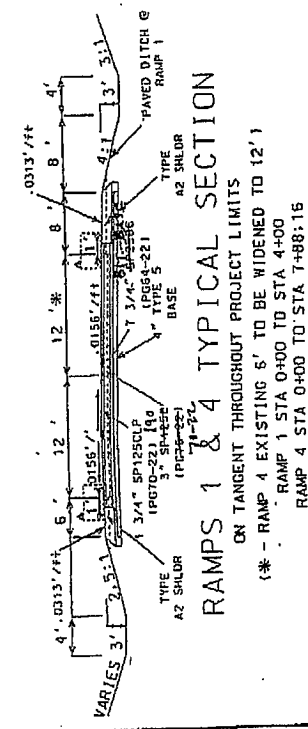
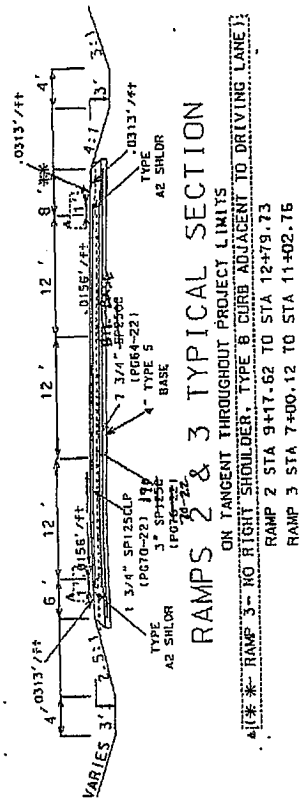
SCALE
1"=20'



MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

TYPICAL SECTIONS
SHEET 4 OF 5

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



TYPICAL SECTIONS
SHEET 4 OF 5

PAVING ALTERNATE A

NOT TO SCALE

#1
A: 2"
C: 8 1/2"

#2
A: 3"
C: 9 3/4"

#3
A: 3 1/4"
C: 9"

#4
A: 2"
C: 9"

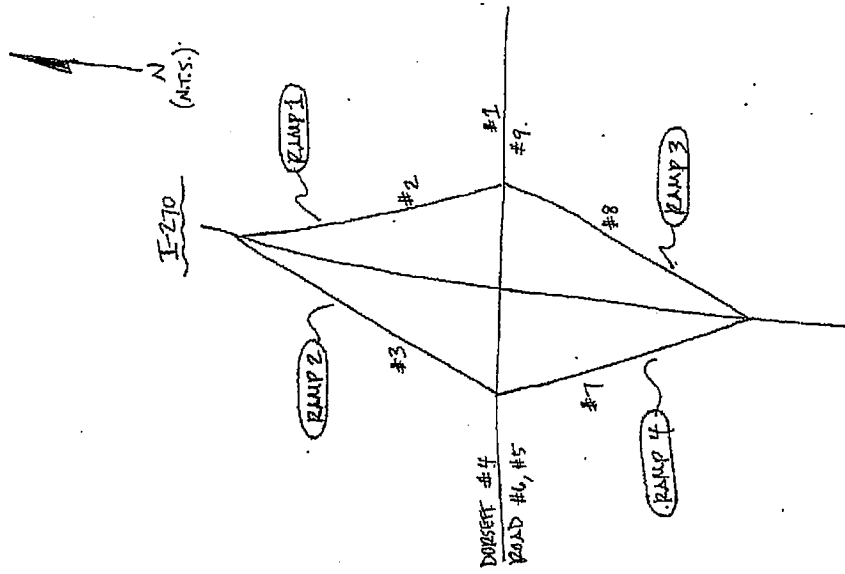
#5
A: 2"
C: N/A

#6
A: 2"
C: 9"

#7
A: 3 1/4"
C: 8 1/2"

#8
A: 3 1/4"
C: 8"

#9
A: 1 3/4"
C: 9 3/4"



SAMPLED: 08/07/09

1/2

John P Donahue /SC/MODOT
08/17/2009 08:53 PM

To Matthew N Jansson/D6/MODOT@MODOT
cc Garland L Hillner/D6/MODOT@MODOT, Christopher K Morgan/D6/MODOT@MODOT, Brandon J Simmons/SC/MODOT@MODOT
bcc
Subject Re: Bituminous Pavement under Superpave

Niall,

Bad idea. This is too important an interchange to be fooling around with bit mixes underneath the wearing course, not to mention using unmodified oils.

Also, even if we would entertain this idea, I don't think they understand that it would not be a regular VE proposal. What they're proposing is lesser in quality to the original Superpave design, not equivalent to or greater than. In other words, it's a practical design VE for which they would get 25%, not 50% of the savings.

Lastly, it would be difficult for us not to claim from them whatever the LCCA adjustment factor for asphalt was for this project, since they won the bid with the PCC design and would now have to account for the projected difference in future rehab costs, or else we could face legal challenges from unsuccessful asphalt bidders (regardless of the fact Weber left so much money on the table).

John

John P. Donahue, P.E.
Construction and Materials Liaison Engineer
Missouri DOT
1617 Missouri Blvd.
Jefferson City, MO 65109
T: (573) 526-4334
F: (573) 526-4324
Christopher K Morgan/D6/MODOT

C.O. PAVEMENT ENGR
RESPONSE

Christopher K Morgan/D6/MODOT
08/17/2009 09:46 AM

To Matthew N Jansson/D6/MODOT@MODOT
cc Garland L Hillner/D6/MODOT@MODOT, John P Donahue/SC/MODOT@MODOT
Subject Re: Bituminous Pavement under Superpave

Niall,

I-64 TEAM RESPONSE

On the cross streets on our project that warranted Superpave, bit base w/ man. sand instead of natural sand (a 50 gyration superpave mix instead of a Marshall mix) was used in the lower lifts. The top two lifts (3.5") were always SP125. If the top lift required 70-22, we used 70-22 for the lift below it as well. In no case was BP-1 used under SP125. Attached is one of our typical section sheets. Please note Pavement Section 12 (Kingshighway) for example. 1 3/4" of SP125CLP(70-22), 1 3/4" of SP125C(70-22), 9 1/2" of BB w/ man. sand (64-22)

The story Weber has related to you is not entirely correct.

Chris Morgan, P.E.

2/
2

MoDOT I-64 Project Office
8474 Delport Drive, Suite 200
St. Louis, MO 63114

Office: (314) 524-9273
Mobile: (314) 220-6419
DC: 140*2*6419
Fax: (314) 524-9240

[attachment "ecopy_1234-QuickConnect-08172009-093954.pdf" deleted by John P Donahue/SC/MODOT]

Matthew N Jansson/D6/MODOT

Matthew N
Jansson/D6/MODOT
08/17/2009 09:28 AM

To Christopher K Morgan/D6/MODOT@MODOT, John P
Donahue/SC/MODOT@MODOT
cc Garland L Hillner/D6/MODOT@MODOT
Subject Bituminous Pavement under Superpave

We have a VE Proposal from Fred Weber on the I-270 Dorsett project. Part of the proposal involves using full depth asphalt rather than the concrete alternate they bid. For this full depth section, the asphalt option in the plans was for 9.25" SP250(64-22), 3" SP250(70-22) & 1.75"SP125LP(70-22).

With the VE, Weber is proposing 9.25" Bit-Base (64-22), 3" BP-1(64-22) and 1.75" SP125LP(70-22).

The other part of the proposal is to leave existing concrete in place and just mill off the 3.75" of existing overlay replacing it with 2" BP-1(64-22) and 1.75"SP125LP(70-22).

Chris, Weber tells me 3"BP-1 was used on I-64 in lieu of the 3"SP250 intermediate course. Is this true? Was it 64-22 or the same as the surface binder grade?

John, what do you think? Looks to me like the \$66,000 savings comes mostly from reducing the binder grade in the 3" course and using Bit Base and BP-1 instead of superpave. It sounds to me like if we required the planned typical, it would actually cost more than the concrete alternate they bid.

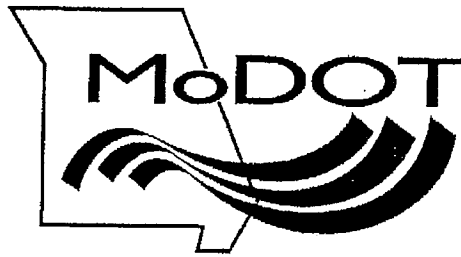
ADT on Dorsett at the interchange is approximately 50,000 vpd, 10% trucks. Starting and Stopping at bottom of ramps and either side of the interchange.

I had Weber cut some cores, little info was provided besides thickness of asphalt and concrete. Should this CONCEPT be approved. MoDOT will do some coring, look at base-rock thickness and perform California Bearing Ratio testing on subgrade prior to making a final decision on approval of the VE.

Thanks for your help. Niall

V:\Contract Information Archive\D06\6DP\090626-601\Value Engineering\VE NUMBER 5\090626-601 J61830B - VE 5 - CARLSON - C104 CONCEPT PROPOSAL.pdf

Missouri
Department
of Transportation



I-270, Dorsett-Page Team
2620 Adie Road
Maryland Heights, MO
63043
(314) 877-2770
Fax (314) 877-2772
Toll free 1-888 ASK MoDOT

Lee Hillner, P.E., Project Director
Niall Jansson, P.E., Deputy Director

August 18, 2009

Mr. Brian Carlson
Fred Weber, Inc
P.O. Box 2501
Maryland Heights, MO 63043

Subject: Value Engineering No. 5 (Use existing pavement @ Dorsett) – Rejected
Job No.: J6I1830B
Route I-270 – St. Louis County
Contract ID: 090626-601

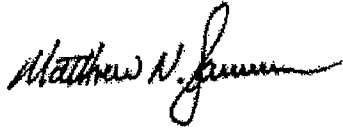
Dear Mr. Carlson:

We have reviewed the concept you submitted to utilize part of the existing pavement and switch to full depth asphalt on Dorsett, henceforth known as VE No. 5, and have some concerns. We will not allow the use of Bituminous Pavement, Bituminous Base or a lesser grade of binder as described in your proposal. Traffic volumes, truck volumes, stops, starts and turns at this interchange are not conducive to lesser mixes than originally designed. You pointed out that this had been used on I-64 and after some investigation, we found that it was a little different than what you propose. Bituminous base is being used in some locations on I-64 as the binder course, however it is not a typical Bituminous Base. It is designed with a gyratory compactor rather than a Marshall hammer and contains manufactured sand rather than river sand. In addition, Bituminous Pavement (BP-1, PG64-22) is not being used as an intermediate lift. The top two lifts are SP125, PG70-22.

Please note, the concept to leave some of the existing concrete pavement in place can still be reviewed if you would like to pursue further. We would need to know if you will still pursue full depth asphalt or concrete and what the existing concrete would be overlaid with. In order to keep our records organized, I am requesting further pursuit of this concept be submitted as a new Value Engineering Concept.

If you have any questions, please call me at (314) 877-2770.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew N. Jansson". The signature is fluid and cursive, with a long horizontal stroke at the end.

Niall Jansson, P.E.
Deputy Project Director
Copies: File
Lee Hillner-de6
Matt Budd-cm6

J:\Janssm\DORSETT - PAGE\CARLSON 081809 (VE 5 REJECTION).doc

VALUE ENGINEERING CHECK SHEET

TYPE OF WORK

(Check one that applies)

- ☐ Bridge/Structure/Footings
- ☐ Drainage Structures (RCP, RCB, CMP's, ect.)
- ☐ TCP/MOT
- ☒ Paving (PCCP, ect.)
- ☐ Grading/MSE Walls
- ☐ Signal/Lighting/ITS
- ☐ Misc. - Base eliminated

SUMMARY OF PROPOSAL

(If needed, condense summary to a couple of lines)

This VE involves substitution of asphalt pavement where the contractor had previously selected the concrete option. The asphalt pavement proposed does not comply with the normal standard for this particular application.

SCANNING OF DOCUMENT

If the proposal is large, please mark or make note, which pages need to be scanned into the database. If there are special instructions, make note of them here.